

AMENDMENTS TO THE SPECIFICATION

Please replace the third paragraph beginning at page 3, line 6, which starts with "Figs. 1A, 1B and 1C" with the following amended paragraph:

P1
Figs. 1A, 1B, and 1C, and 1D illustrate several individual sanitary appliances with individual triggering devices therefore; and

P2
Please replace the fifth paragraph beginning at page 3, line 11, which starts with "It is the present practice" with the following amended paragraph:

P3
It is the present practice in most public washrooms, including those found in institutions, for the various sanitary appliances and/or water flow control plumbing devices to be hard wired to the triggering device which causes their operation. More specifically, in such an environment, and using a toilet flush valve as an example, there is a hard wire connection between the electric operator of the valve and the triggering device whether it be a sensor, such as an infrared sensor, or a pushbutton in which the user of the device manually operates the pushbutton to ensure its operation. The flush valve may be associated with a urinal or it may be associated with a water closet. Similarly, there are hard wire connections to operate other appliances such as faucets, shower heads, soap dispensers, paper towel dispensers, and hand dryers. The present invention is applicable to any personal hygiene and/or sanitary appliance of the above type and the triggering device, whether it be a sensor, such as an infrared sensor, or a switch which is manually operated by the individual who intends the appliance to be utilized. Specifically, the present invention replaces a hard wire connection with a radio communication link. Figs. 1A, 1B, and 1C, and 1D show several appliances of this type and the use of two distinct type of triggering devices, one an infrared sensor and the other a pushbutton. Either triggering device may be used with any appliance and there are also instances in which both triggering devices may be utilized with such an appliance, with the manual device being used as an override or for maintenance purposes.

Please replace the paragraph beginning at page 4, line 7, which starts with "Fig. 1A shows a flush valve 10" with the following amended paragraph:

P3
Fig. 1A shows a flush valve 10 which may be associated with either a urinal or a water closet and which may be either battery operated or connected to a local power source. The flush valve may be of the type shown in U.S. Patents 5,169,118 and 5,244,179, both owned by the assignee of the present application, Sloan Valve Company of Franklin Park, Illinois. The disclosures of the '118 and '179 patents are herein incorporated by reference. The flush valve 10 will include an electric operator, such as a solenoid, powered either by battery or by connection to local power which, upon actuation, will cause the flush valve to pass a measured amount of water to either a water closet or a urinal. The flush valve 10 is diagrammatically shown Fig. 1A and in the preferred embodiment of the invention will include, within the unit itself, the described electric actuator, battery power if desired, and in addition, a radio frequency transmitter 11 and a radio frequency receiver 13. Typically, these devices will operate in the 400

A3
MHz range and the normal maximum power that would be used at the transmitter is 200 milliwatts. What is necessary is that there be a range of approximately 100 ft.

A4
Please replace the second paragraph beginning at page 4, line 21, which starts with "Associated with the flush valve 10" with the following amended paragraph:

Associated with the flush valve 10 and the described radio frequency transmitter 11 and receiver 13 is an infrared sensor 12 which is shown as a part of the flush valve apparatus in the '118 and '179 patents, but herein is disclosed at a location separate and apart from the flush valve. The sensor 12 will also include a radio frequency transmitter 15 and a radio frequency receiver 17 operating in the described frequency range and with the described power requirements. These may be battery operated or they may be connected to local power.

A5
Please replace the paragraph beginning at page 5, line 5, which starts with "There is also a pushbutton actuator 14" with the following amended paragraph:

There is also a pushbutton actuator 14 which again will have associated with it a radio frequency transmitter 19 and a radio frequency receiver 21, as described. Both the infrared sensor 12 and the pushbutton 14, with the associated RF radio equipment, further have a light emitting diode indicator shown at 14a, as associated with the pushbutton, and at 12a, as associated with the infrared sensor 12.

A6
Please replace the third paragraph beginning at page 6, line 13, which starts with "Fig. 1B shows a similar arrangement for" with the following amended paragraph:

Fig. 1B 1D shows a similar arrangement for operation of a soap dispenser and a faucet. There is a sink 16 beneath which is an electric operator unit 18 to control operation of a faucet 20 and a transmitter 39 and receiver 41 included within the same enclosure as operator unit 18 to control operation of a faucet 20. There is a soap dispenser 22 also associated with the sink 16, which dispenser will have an electric operator as well as a transmitter and receiver. A sensor is indicated at 24 for the faucet, and as described in connection with Fig. 1A, will have both a transmitter 23 and receiver 25 included within the same enclosure. Similarly, there is a sensor 26 which is suitable for use with the soap dispenser 22 and again will have a transmitter 27 and receiver 29 associated with it. There are indicators 24a associated with the faucet sensor and an indicator 26a associated with the soap dispenser sensor.

A7
Please replace the paragraph beginning at page 7, line 9, which starts with "Similarly, there is a hand dryer 30 near" with the following amended paragraph:

Similarly, in Fig. 1B, there is a hand dryer 30 near the sink 16 and the hand dryer 30 will have a sensor 32, again with a transmitter 31 and receiver 33, just as the hand dryer 30 has a transmitter 35 and receiver 37. These particular radio communication elements will again have addresses peculiar to the appliance and its sensor so that operation of the hand dryer only results when its electric operator is activated by the receiver which receives a

~~A~~X signal from the sensor 30 and again there will be an answer back or acknowledgment message sent to the sensor so that its indicator 32a will be operated.

Please replace the second paragraph beginning at page 7, line 16, which starts with "Although the appliances in Fig. 1B only" with the following amended paragraph:

Ad
Although the appliances in Fig. Figs. 1B and 1D only show operation by an infrared sensor, it should be understood that there may also be pushbutton or other manually operated devices associated with any one or all of a faucet, soap dispenser, hand dryer or paper towel dispenser.

Please replace the third paragraph beginning at page 7, line 19, which starts with "Fig. 1C shows a shower head 40 having" with the following amended paragraph:

A9
Fig. 1C shows a shower head 40 having an electric operator 42, and a transmitter 43 and receiver 45 associated therewith indicated at 42. A sensor is shown at 44 with an indicator 44a. The appliance and its associated sensor in Fig. 1C operate in the same manner as in Figs. 1A, and 1B, and 1D. In each instance when the sensor is activated, an intent message having an address peculiar to the shower head 40 will be sent to the receiver 42 45 at the shower head. Its associated transmitter 43 will send an acknowledge or answerback message to the sensor so that the indicator 44a will be illuminated. The messages have an address which is unique to that specific appliance and that specific sensor so as to avoid operation of unwanted appliances and confusion in the answerback system. In this connection, although an LED is shown as the indicator, it is equally within the scope of the invention to have an audible answerback or acknowledgment.

A10
Please replace the paragraph beginning at page 8, line 8, which starts with "Fig. 2 diagrammatically illustrates" with the following amended paragraph:

Fig. 2 diagrammatically illustrates a control board for use in a washroom having one or more or all of the appliances described in Figs. 1A, 1B, and 1C, and 1D. There may be multiple flush valves, multiple faucets, multiple soap dispensers, multiple paper towel dispensers, multiple hand dryers and one or more shower heads in a single washroom environment or in the washroom of an institution. Such appliances are shown at 46. The triggering devices for such appliances, either sensor or switch, are shown at 48. A control board is indicated at 50 and it may include a radio receiver 52 and a radio transmitter 54. There is a microprocessor 56 within the control board and the microprocessor may be one of the type shown in U.S. Patents 6,038,519 and 5,966,753 owned by Sloan Valve Company of Franklin Park, Illinois, assignee of the present application. The disclosure of these two patents is herein incorporated by reference. Specifically, such disclosure provides a hard wired control system in which there are multiple inputs from multiple appliances and multiple outputs from the microprocessor hard wired to various appliances in such a way that a sensor will provide an indication that there is an intent to operate a specific appliance and the microprocessor will determine, upon the data stored therein, whether it is appropriate to operate that appliance and, if so, for what period of time. Further, there may be programmed flushing of various

flush valves, as shown in U.S. Patent 5,235,706, also owned by Sloan Valve Company, and again the disclosure of which is incorporated by reference. The microprocessor 56 is designed, as described in the above U.S. patents, to control the operation of multiple personal hygiene or sanitary appliances within a particular location and the communication with such appliances is over wiring which physically connects the sensor, the control board and the appliance. The system illustrated in Fig. 2 provides radio control between a sensor 48, the control board and the appliance 46. Further, it will employ the acknowledgment or answerback system of Figs. 1A, 1B, and 1C, and 1D. More specifically, any one or all of the appliances described in those figures, or multiples of such appliances, may all send radio signals which will be received by the receiver 52. Since each of those signals will have a different address, or appliance designation, that information will be passed to the processor which in turn will perform its functions relative to operation of the appliance.

Please replace the paragraph beginning at page 10, line 4, which starts with "When it is desired that an appliance" with the following amended paragraph:

When it is desired that an appliance be operated, a signal will be sent by the transmitter 54 to the receiver associated with that appliance. The receiver will provide an answerback, just as described in connection with Figs. 1A, 1B, and 1C, and 1D. The particular appliance, soap dispenser, shower head, paper towel dispenser, faucet or flush valve, will then be operated for the predetermined time which has been programmed for its operation by the microprocessor 56.